

Claims:

1. An insert for use in a beverage preparation machine of a type comprising a brew head suitable for receiving a rigid or semi-rigid cartridge, the brew head comprising an upwardly directed inlet for supplying water to the brew head and a downwardly directed outlet for outflow of beverage produced by the machine, the insert comprising an upper part, a lower part and sealing means, the upper and lower parts being moveable between an open configuration in which a quantity of beverage ingredients may be loaded into the insert and a closed configuration in which the upper and lower parts are sealed together by the sealing means to define therebetween a brewing volume containing, in use, the quantity of beverage ingredients, the lower part comprising an inlet and an outlet arranged to communicate respectively with the inlet and outlet of the brew head of the beverage preparation machine when the insert is inserted into the machine such that, in use, water from the inlet of the brew head passes upwardly through the inlet of the insert into the brewing volume and such that beverage produced from the water and the quantity of beverage ingredients passes downwardly through the outlet of the insert to flow out of the outlet of the brew head.

2. An insert as claimed in claim 1 wherein the quantity of beverage ingredients loaded in use into the insert are loose.

3. An insert as claimed in claim 2 wherein the insert comprises filtering means between the brewing volume and the outlet of the insert.

4. An insert as claimed in claim 1 wherein the quantity of beverage ingredients loaded in use into the insert are contained in a container comprising filtering means.

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5. An insert as claimed in claim 4 wherein the container is flexible.

6. An insert as claimed in claim 4 or claim 5 wherein the  
10 container is formed at least in part from a filter paper or filtering membrane.

7. An insert as claimed in any of claim 4 to 6 wherein the container is a filter bag.

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8. An insert as claimed in claim 4 wherein the container is a rigid or semi-rigid cartridge.

9. An insert as claimed in claim 8 wherein the cartridge  
20 is any of semi-spherical, cylindrical, round or square in shape.

10. An insert as claimed in any preceding claim wherein the sealing means is located on or in the upper part of the  
25 insert.

11. An insert as claimed in any of claims 1 to 9 wherein the sealing means is located on or in the lower part of the insert.

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12. An insert as claimed in any preceding claim wherein the sealing means comprises a ring seal for sealing around a periphery of the brewing volume.

5 13. An insert as claimed in claim 12 wherein the sealing means comprises an O-ring.

14. An insert as claimed in any preceding claim wherein the sealing means is formed from an elastomeric material.

10 15. An insert as claimed in any preceding claim wherein the upper part and lower part are disconnected from one another.

16. An insert as claimed in claim 15 wherein the upper part  
15 and lower part comprise co-operating formations to permit snap-fitting together of the upper part and lower part.

17. An insert as claimed in any of claims 1 to 15 wherein  
the upper part and lower part are joined by a hinge allowing  
20 the upper and lower parts to move between the open and closed configurations.

18. An insert as claimed in any preceding claim wherein the  
upper part of the insert is rigid or semi-rigid such that  
25 pressure applied, in use, to the upper part of the insert by a closure mechanism of the beverage preparation machine on closing of said closure mechanism squeezes the upper and lower parts of the insert together with sufficient force for the sealing means to seal together the upper and lower  
30 parts.

19. An insert as claimed in any preceding claim wherein the upper part of the insert is rigid or semi-rigid such that pressure applied, in use, to the upper part of the insert by a closure mechanism of the beverage preparation machine on closing of said closure mechanism seals the lower part of the insert against the inlet of the brew head of the beverage preparation machine.
20. An insert as claimed in any preceding claim wherein the upper part is in the form of a domed shell.
21. An insert as claimed in any preceding claim wherein the lower part of the insert is formed as one piece.
22. An insert as claimed in any of claims 1 to 20 wherein the lower part of the insert is formed from more than one piece.
23. An insert as claimed in any preceding claim wherein the insert is disc-shaped.
24. An insert as claimed in any preceding claim formed from plastic.
25. An insert as claimed in any preceding claim wherein the inlet and outlet of the insert are coplanar.
26. An insert as claimed in any preceding claim further comprising an aperture for receiving on insertion of the insert in the beverage machine a window of a bar code reader or RFID reader of said machine.

27. An insert as claimed in claim 26 wherein the aperture is coplanar with the inlet and outlet of the insert.

28. An insert as claimed in any preceding claim wherein the inlet of the insert is located at or near a periphery of the lower part and the outlet of the insert is located at a centre of the lower part.

29. An insert as claimed in any preceding claim wherein, in use, flow through the insert is from the inlet to the outlet.

30. An insert as claimed in claim 29 wherein, in use, flow through the insert is generally in an inward direction from the inlet to the outlet.

31. An insert as claimed in any preceding claim further comprising means for rotatable attaching the insert to the beverage preparation machine.

32. An insert as claimed in claim 31 wherein the rotatable means allows the insert to be rotated on closure of a closure mechanism of the beverage preparation machine into a horizontal orientation such that the lower part is sealed against the inlet of the brew head.

33. An insert as claimed in claim 31 or claim 32 wherein the rotatable means comprises one or more legs which are attachable to, and rotatable about, one or more pivot points of the brew head.

34. An insert as claimed in any preceding claim further comprising coding means for controlling operation of said beverage preparation machine.

5 35. An insert as claimed in claim 34 wherein the coding means comprises a bar code or radio frequency identification device (RFID).

10 36. A beverage preparation system comprising a beverage preparation machine and an insert for use in said machine, said insert being as claimed in any preceding claim.

15 37. A beverage preparation system as claimed in claim 36 wherein the beverage preparation machine comprises a brew head suitable for receiving a rigid or semi-rigid cartridge, the brew head comprising an upwardly directed inlet for supplying water to the brew head and a downwardly directed outlet for outflow of beverage produced by the machine.

20 38. A beverage preparation system as claimed in claim 37 wherein the inlet of the brew head is located at or near a periphery of the brew head and the outlet of the brew head is located at a centre of the brew head.

25 39. A beverage preparation system as claimed in claim 37 or claim 38 wherein, on insertion of the insert into the brew head, the inlet and outlet of the insert lie on top of the upwardly directed inlet and downwardly directed outlet orifices of the brew head.

30 40. A beverage preparation system as claimed in any of claims 37 to 39 wherein the brew head of the beverage

preparation machine comprises a closure mechanism moveable between an open configuration in which the insert can be inserted into the brew head and a closed configuration in which the insert is squeezed together by the closure

5 mechanism with sufficient force for the sealing means of the insert to seal together the upper and lower parts of the insert.

41. A beverage preparation system as claimed in any of  
10 claims 37 to 40 wherein the brew head of the beverage preparation machine comprises a closure mechanism moveable between an open configuration in which the insert can be inserted into the brew head and a closed configuration in which the lower part of the insert is sealed against the  
15 inlet of the brew head of the beverage preparation machine.

42. A beverage preparation system as claimed in any of claims 37 to 41 wherein the brew head comprises a fixed lower part and a rotatable upper part, the fixed lower part  
20 comprising the brew head inlet and outlet, the upper part being rotatable from an open position in which the insert can be inserted into the brew head and a closed position in which the insert is engaged between the fixed lower part and the rotatable upper part.

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43. A beverage preparation system as claimed in claim 42 wherein the insert is a rotatable attachment to the brew head such that rotation of the upper part of the brew head from the open to the closed position rotates the insert into  
30 contact with the fixed lower part.

44. A beverage preparation system as claimed in claim 42 wherein the insert is locatable directly onto the fixed lower part of the brew head when the upper part of the brew head is in the open position.

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45. A beverage preparation system as claimed in any of claims 36 to 44 wherein the beverage preparation machine comprises a reader for detecting a bar code or radio frequency identification device (RFID) located on the insert.

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46. A beverage preparation system as claimed in any of claims 36 to 45 further comprising a quantity of beverage ingredients.

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47. A beverage preparation system as claimed in claim 46 wherein the quantity of beverage ingredients is contained in a container comprising filtering means.

20 48. A beverage preparation system as claimed in claim 46 or claim 47 wherein the beverage ingredients are selected from the group containing roast and ground coffee, leaf tea, powdered coffee, powdered tea, creamer, cappuccino mix, chocolate and liquid chocolate, coffee, tea and milk.

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49. A beverage preparation system as claimed in claim 48 wherein the container is flexible.

30 50. A beverage preparation system as claimed in claim 48 or claim 49 wherein the container is formed at least in part from a filter paper or filtering membrane.



51. A method of dispensing a beverage using a beverage preparation machine comprising a brew head suitable for receiving a rigid or semi-rigid cartridge, the brew head comprising an upwardly directed inlet for supplying water to the brew head and a downwardly directed outlet for outflow of beverage produced by the machine, the method comprising the steps of:

opening a closure mechanism of the beverage preparation machine;

inserting an insert into the brew head, the insert being as claimed in any of claims 1 to 35 and containing a quantity of beverage ingredients;

closing the closure mechanism to squeeze the insert with sufficient force such that the sealing means of the insert seals together the upper and lower parts of the insert;

operating the beverage preparation machine to pass water upwardly from the inlet of the brew head through the inlet of the insert into the brew volume of the insert;

dispensing a beverage formed in the brew volume from the water and the beverage ingredients downwardly through the outlet of the insert and the outlet of the brew head.